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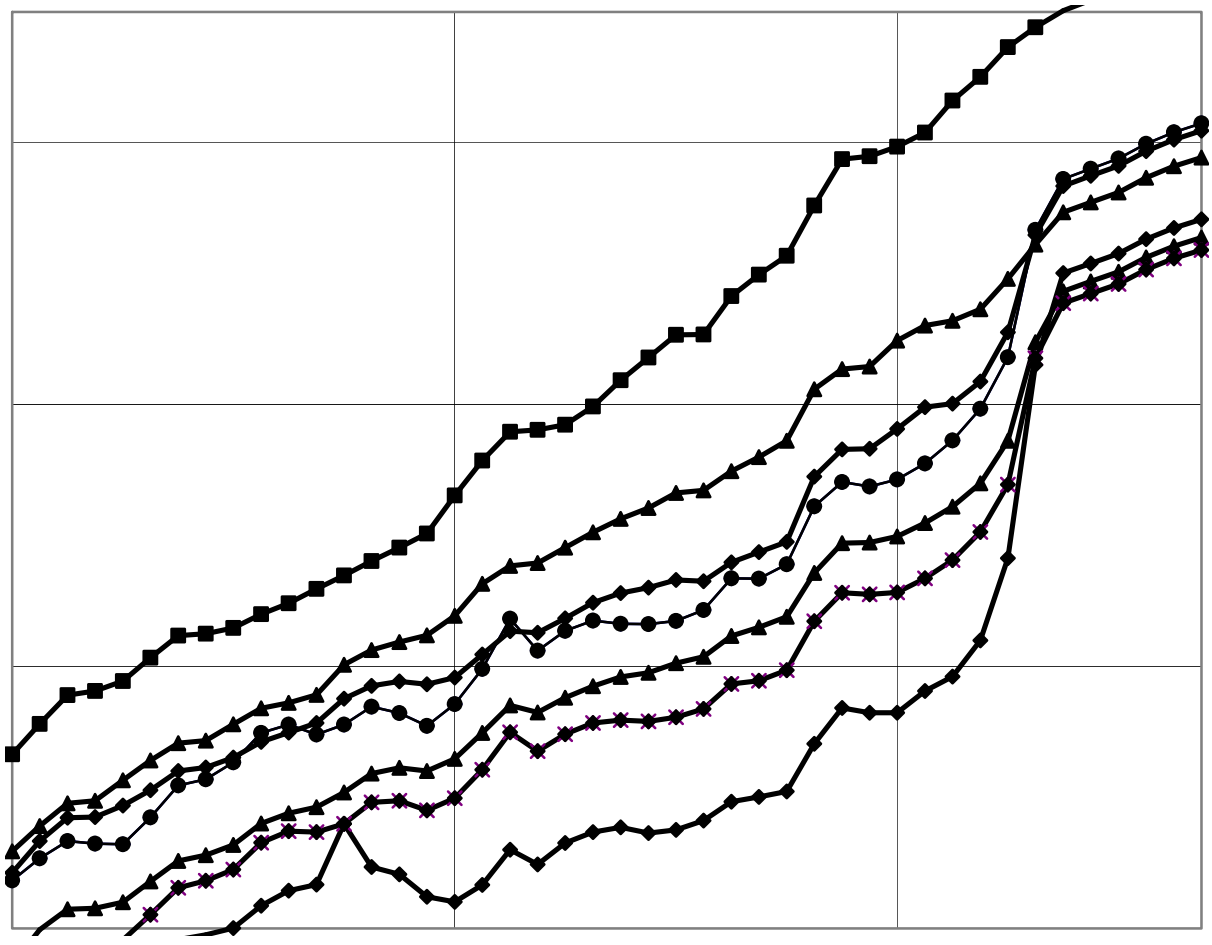
# Civil Works Construction Cost Index System (CWCCIS)



DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, DC 20314-1000

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Manual
No. 1110-2-1304

31 March 2000

**Engineering and Design**
**CIVIL WORKS CONSTRUCTION COST INDEX SYSTEM (CWCCIS)**

1. Purpose. The purpose of this manual is to provide historical and forecasted cost indexes for use in escalating civil works project costs.

2. Applicability. This manual applies to all USACE commands having civil works design cost responsibilities.

3. Distribution Statement. Approved for public release, distribution is unlimited.

4. References.

a. ER 5-1-11, Program and Project Management

b. ER 1105-2-100, Guidance for Conducting Civil Works Planning Studies

c. ER 1110-2-1302, Civil Works Cost Engineering

d. EP 1110-1-8, Construction Ownership and Operating Expense Schedule

e. EI 01D010, Construction Cost Estimates

f. Corps of Engineers Civil Works Direct Program – Program Development Guidance for applicable fiscal year.

FOR THE COMMANDER:

1 Appendix
(See Table of Contents)

RUSSELL L. FUHRMAN
Major General, USA
Chief of Staff

This Engineer Manual supercedes EM 1110-2-1304, dated 12 October 1988

# CIVIL WORKS CONSTRUCTION COST INDEX SYSTEM (CWCCIS)

## TABLE OF CONTENTS

# CHAPTER 1

# INTRODUCTION

1-1. Use. The indexes presented in this manual are specifically designed for Civil Works construction, and are specific for each of the major Civil Works features. Only indexes for construction costs have been developed. The indexes are used to escalate or inflate various project cost features to current or future price levels in accordance with the above references. There are state adjustment factors included in this manual that allow a project estimated in one state to be adjusted to a project in another state.

1-2. Price Level Update Procedure. Before using cost indexes to update project costs, check to ensure there have been no changes in the project design, schedule, and Corps policy. The recommended procedure is to re-estimate project costs using current labor, equipment, and material rates at least every two years and use indexed values to escalate for inflation during the interim. Using index values to update project costs more than two consecutive years is not recommended.

1-3. Forecast Reliability. The user is cautioned that these index tables are made of historic indexes and simple projected indexes based on Office of Management and Budget (OMB) inflation factors. While the historic projections are reliable to update project costs, forecasting beyond two years may be unreliable.

1-4. Index Tables and Examples. An explanation of each index table and an example of how to use the indexes are included in the Appendix.

1-5. Updated index tables. The cost index tables will be updated twice each year in March and September. The updated cost index tables will be available on the Internet at http://www.nww.usace.army.mil/cost. The complete text with updated cost index tables will be available on the Internet at the HQUSACE documents homepage at http://www.usace.army.mil/inet/usace-docs/eng-manuals/em1110-2-1304/toc.htm. Both of these documents are in Portable Document Format (PDF).

1-6. Assistance. If assistance is required in understanding the methodology, or in obtaining updates of the cost index tables, contact the Chief, Cost Engineering Branch, CENWW-ED-C, U.S. Army Corps of Engineers, Walla Walla District, phone (509) 527-7510.

# CHAPTER 2

# DEVELOPMENT OF COST INDEXES AND STATE ADJUSTMENT FACTORS

## SECTION I. GENERAL

2-1. Contents. This Chapter explains how the construction cost indexes and state adjustment factors are developed. It explains the definitions of terms, sources used, historical information and the Civil Works Breakdown Structure Feature Codes (found in EI 01D0101).

2-2. Indexes. ER 1110-2-1302, ER 1105-2-100, and EI 01D0101 require this EM be used to update unit prices and other various project costs to current or forecasted price levels.

2-3. Escalation of Project Costs. For programming and budget preparation purposes, project costs are escalated for inflation. Indexes used to escalate costs from the past to the present are developed from actual historic data. Indexes for future escalation are developed using the "Updating Factors" in Table 1, of the EC, Corps of Engineers Civil Works Direct Program – Program Development Guidance which are based on the current annual Office of Management and Budget (OMB) inflation factors.

## SECTION II. DEFINITIONS

2-4. Cost Index. A ratio between composite costs at one period of time compared to the same composite cost at the base year. The index number thus indicates the change in cost between the base year and the later date.

2-5. Composite Index. A composite index is the combination of two or more cost indexes to form a single index number.

2-6. Base Year. The base year is the base reference point. Many published index sources including this manual use 1967 as the base year.

## SECTION III. DEVELOPMENT OF COST INDEXES AND STATE ADJUSTMENT FACTORS

2-7. Historical Basis. The basis for the development of these indexes was derived from over 80 detail government estimates. These estimates were used in developing the weighted relationship of labor, equipment and material costs for various types of

projects. This weighted relationship was used to develop a composite index for the various projects.

2-8. Civil Work Breakdown Structure (CWBS) Feature Code. The CWBS Feature Code can be found in the EI 01D010 and ER 1110-2-1302. Civil Works cost estimates are summarized by the feature code levels listed in these documents. The feature code indexes listed in this manual were developed using the weighted relative costs taken from the 80 cost estimates. However, Feature 12, Navigation Ports & Harbors, was prepared using a weighted composite of: marine equipment cost, diesel fuel cost, operating labor cost, and Facilities Capital Cost of Money only and did not use historical cost estimates.

## SECTION IV. SOURCES USED FOR COST INDEXES AND STATE ADJUSTMENT FACTORS

2-9. Sources Used to Develop Indexes. In developing the cost indexes, data for actual labor, equipment, and materials, are obtained from several sources. The data that makes up the indexes come from the following sources.

a. OMB updating factors. The yearly and quarterly projected cost indexes are forecasted several years into the future based on the updating factors provided by OMB. They are published each year in Table 1 of EC, Corps of Engineers Civil Works Direct Program – Program Development Guidance.

b. Producer Price Indexes (PPI). These historic indexes are the basis of the equipment and material resource portion of the cost indexes. The Bureau of Labor Statistics (BLS) prepares these indexes.

c. RS Means, Labor Rates for the Construction Industry and Building Construction Cost Data. The construction labor rate portion of the cost indexes is based on the “Average Historical Labor Rates for 30 Major Cities” for building construction trades wage rates. This data is published annually by R.S. Means Company.

d. Engineering News Record (ENR), Quarterly Cost Reports. The “20-City: Construction Cost Index” (CCI) is used to calculate the combined dredging index and “20-City: Builders Construction Index” (BCI) is used to calculate the cost indexes. The indexes are published quarterly in the ENR magazine.

e. Bureau of Reclamation Construction Cost Trends. The “turbines and generators” index in this publication is used in the calculation of the cost indexes for Feature Code 07, Power Plants. This index is published quarterly by the Bureau of Reclamation and is included in the Quarterly Cost Reports published by ENR.

f. EP 1110-1-8, Construction Equipment Ownership and Operating Expense Schedule. The equipment costs from this publication are used to develop the

equipment element part of the state adjustment factors. The U.S. Army Corps of Engineers publishes this pamphlet every two years.

g. RS Means, Heavy Construction Cost Data. The “City Cost Index” installation labor index and materials index are used for the labor and materials portion of the cost indexes. This data is published annually by R.S. Means Company.